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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

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Empfohlene Zitierung / Suggested Citation:

Salais, R. (2016). Quantification and objectivity: from statistical conventions to social conventions. *Historical Social Research*, 41(2), 118-134. <https://doi.org/10.12759/hsr.41.2016.2.118-134>

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Quantification and Objectivity. From Statistical Conventions to Social Conventions

Robert Salais*

Abstract: »Quantifizierung und Objektivität. Von statistischen Konventionen zu sozialen Konventionen«. Standard quantification processes and most often their analysis are derived from statistics' technique and approach. Social conventions are at the core of daily life, practical knowledge and coordination between people; statistical conventions are at the heart of cognitive activities developed by statisticians. What does quantification mean when addressed from the wider point of view of social conventions? This article analyzes the differences between social and statistical conventions. It enlarges the concept of objectivity in having recourse to the lenses of the plurality of worlds as defined by the economics of convention (EC), and to the concept of the informational basis of judgement in justice introduced by Amartya Sen. A wider conception of quantification processes in the social world can thus be elaborated, which opens fresh views on what become, in these processes, the concepts of facts and democracy.

Keywords: Quantification, conventions, statistics, worlds, plurality, informational basis, judgment in justice, facts, democracy.

1. Introduction

In his article in *Historical Social Research* 37 (1), Alain Desrosières (2011) has shown how deeply the economics of convention (in short EC) is historically rooted in research on the history of statistical conventions and categories. Are statistical conventions of measurement nonetheless of the same nature as the social conventions people have recourse to coordinate in daily situations of life and work? Or do they delineate two separate universes that intersect only fortuitously? Such questions are all the more important as standard quantification processes, and most often their analysis, are both derived from statistics' technique and approach. Social conventions are at the core of daily life, practical knowledge and coordination between people; statistical conventions are at the heart of cognitive activities developed by statisticians. Hence, what does quantification mean when addressed from the wider point of view of social conventions?

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In this article, I try to develop that wider view on quantification processes in taking inspiration from the EC. In Section 2, I review the status of objectivity in a few of the canonical works of sociology of quantification. In Section 3, I more in-depth analyze the differences between social and statistical conventions. Then, in Section 4, I enlarge the concept of objectivity in having recourse to the lenses of the plurality of worlds as defined by the EC, and to the concept of the informational basis of judgement in justice introduced by Amartya Sen. In Section 5, I list the main characteristics of quantification processes on which to look from such a combined point of view, mixing the economics of convention and Sen's developments.

So let me begin by briefly presenting the two universes of social versus statistical conventions. I will come back to them in Section 3. Social conventions allow us to coordinate with others, to form mutual expectations, to understand each other without even having to think about it beforehand, and explain to others the purport of what we are going to do, without *ex ante* negotiating a contract, without external rules embedded into institutions and dictating our behavior. Systems of conventions shared by people create worlds in which people mutually consider they live and act together. These worlds are not "real" in the positivist sense. They are real in the sense that coordinating people give the elements of these worlds compatible meanings and verify the likelihood of these meanings by the fact they successfully achieve their undertakings and projects. There is a plurality of such worlds of variable scope based on different principles. As social beings in our daily life, we are moving from one world to another, depending of the activity, the people, the situation at stake. They are not at all immutable worlds forever. They arise and re-arise again in situations by being generated via mutual expectations and coordination between people. They are for people more or less implicit or reflexively explicit depending of events and hazards. Though they are not – properly speaking – substantial, these worlds left interpretable traces, either material, cognitive, or symbolic in the situations. To what extent can all these very diverse common worlds we just spoke about be relevantly subject to standard quantification processes, applying statistical techniques?

To have a preliminary view of what statistical conventions are, open any publication by a statistician. You will always find, at the beginning or in a by-side insert, a series of methodological precautions. These tell the reader the detailed procedures and categories that have been employed, what they allow to say and not to say when interpreting them. The fact that the right procedures are followed serves as proof that data is correct. Publishing the methodology is supposed to guarantee the reproducibility: anybody who would try to reproduce the methodology would arrive at the same outcome. Doing so, statisticians are applying the procedural objectivity as employed in scientific research. Is this type of objectivity valuable for quantifying processes of social life? Do "ordinary" people have recourse on this type of objectivity when deploying social

conventions? Or do they put into action other objectivities? These are the issues I will first consider.

2. Scientific Objectivity and Social Conventions

Approaches of quantification processes have begun in the Anglo-Saxon world in the more general field of sociology of sciences. The Anglo-Saxon world, its social actors, and researchers, are characterized by its focusing on a specific conception of objectivity, that of scientific objectivity as first developed in Britain by the very influential scientist Francis Bacon.

I have immersed myself in a series of articles on objectivity that I had collected, promising myself to read them one day. These articles come from special issues from *Annals of Scholarship* published in 1992 that included work by noted researchers in the field of sociology of quantification, such as Lorraine Daston, Theodore Porter, and Peter Miller.¹ I find that the predominant notions and practices in the Anglo-Saxon world can be summarized by their strong historical reliance on a specific concept of “facts.” Any knowledge is not “fact.” To become fact, knowledge should be detached both from the context of observation in which facts were generated and from contemporary theoretical controversies (that are relegated to the rank of ideologies). If so, such facts could be said as objective, which means that such facts become entirely self-sufficient as incontrovertible truths. They owe nothing to the turbulence of ideological debates or the specificities of the field of observation. So they must prevail in the discussion.

2.1 From Baconian Objectivity to Modern “Evidence”

The above posture, very influential over time, is that adopted by Francis Bacon in the 17th century, in opposition to Aristotle and the scholastics. Lorraine Daston has followed the posterity of this position through the debates it raised over time within the scientific community (Daston 1992). It is worth briefly recalling in what system of beliefs Bacon has embedded his conception of objectivity.

Frank and Fritzie Manuel (1976) remind us that, among many writings, Bacon was the author of a utopia, *The New Atlantis* (Bacon 1951). The major institution of Atlantis was a college of 36 scientists-priests called the Elders. Their mission – an action program obeying to a very centralized organization – was to monitor in Atlantis the development of science toward innovation and the accumulation of scientific knowledge. This so-called Solomon’s House was independent both from the state and from the people. Elders decided what inventions and experiments should be made public and which should not, and

¹ See Allan Megill, ed. (1992, 1994).

also when to impart secret inventions to the state. “The end of our foundation is the knowledge of the causes, and secret motion of things; and the enlarging of the human Empire, to the effecting of all possible things” (Bacon 1951, 288). The methodology was based on the repetition of the same experiments under different conditions (what are called today experimental designs). Outcomes were discussed by the college and new experiments decided. Some Elders, called the “Interpreters,” were in charge to “distill from all the experiments general observations and axioms” (Manuel and Manuel 1979, 258). One recognizes the experimental, science-based objectivity of the concept of “facts” as above defined.

The other dimension of the objectivity of “facts,” independence from ideology, has been today amputated from its Baconian religious connotation. Bacon was concerned not to sully science by human emotions and, above all, that scientists “do not presume by the contemplation of nature to attain to the mysteries of God” (Bacon 1951, 6). Indeed, the scientist had a religious duty to inquire into God’s creation and to force nature to yield up in works all the potentialities inherent in creation (in other terms all that had ever been there, waiting for its discovery). But the objective of science for Bacon was accumulation of knowledge through the contemplation of nature, not accumulation of capital through the exploitation of nature. This (fragile) preservation of nature proceeds for Bacon from its God creation.

In the long run, this concept of “fact” has been refurbished without losing its key foundations. Today, minus religion-based ethics, plus quantitative efficiency (the search of what works),² the same ideal of objectivity is called “evidence.” Evidence remains something on which everybody should agree without discussion whatever his political, social, or theoretical position, and that can be extracted without cognitive damage from the singularities of the empirical observation. Evidence is not pre-given; it should be built through procedures that possess the property of objectivity.

In matters of scientific knowledge, the possibility of relying on this type of objectivity is dependent on the experimental protocol that must be as rigorous, verifiable, and reproducible by a third party as is possible. As emphasized by Allan Megill in his introduction, the underlying objectivity is procedural (Megill 1992). As long as the procedure is followed, the result obtained belongs to a sphere that is neither that which is true or just, but the unfalsifiable. It will remain valid until another researcher posits another theory and shows, using a methodology of the same nature, that in fact there should have been a different understanding of the same reality, that there are other properties and forces at work. And even then, the figures will be established along similar types of procedures.

² Search of what works is now the matter of a myriad of books in the Anglo-Saxon literature, both scientific and popular.

In such a methodological posture, quantification is sought, not merely for the additional information it provides, but mostly to bring the incontrovertible procedural proof that one is right. Could what is valid in scientific matters be transferred as such to social life (not to speak of the controversies on such issue in hard sciences also)? If so, “facts,” even those related to human and social affairs, should thus be abstracted from the social conventions of their time and population. This pretention is highly contestable, as we will see below.

2.2 The Use of Evidence in Quantification in Bureaucratic and Managerial Circles

Observing Anglo-Saxon bureaucratic and managerial circles, Theodore Porter (1992) and Peter Miller (1992) conclude that, in these circles, the force of quantification lies in its reliance on the objectivity of figures and the intangibility of the bureaucratic and managerial rules that underlie their constitution. The objectivity of figures is based on arithmetic, and therefore cannot be contested: 4 is larger than 3; a drop from 100 to 80 is a 20% reduction. The intangibility of the rules is due to the fact that they are rationally grounded and have been rigorously established to achieve a certain sort of optimum balance, both social and economic.³

Procedural objectivity has another property, “politically” interesting to transport into the social domain. It is impartial. The subject of this type of quantification cannot complain of partiality, and conversely can argue that s/he has not profited from any special treatment. Neither injustice nor favoritism, this type of quantification instruments a particular conception of justice, the justice based on objective equality of treatment. These two authors suggest the ways in which – in this social context of objectivity – figures can be appropriately manipulated and have the power to transform practices, behavior, and thinking. As Miller puts it, the proponents of corporate accounting (in this case analytical accounting) are driven by the utopian desire to “form” a new man, in the strongest sense, of giving shape and – almost – life. Such a new man would think and act according to the dictates of performance prescribed by accounting. He could not imagine any other way of being. For he has been convinced that the world created for him is efficient (privileging performance) and just (treating individuals equally). This world espouses values that this individual recognizes: talent, merit, and responsibility.

Procedural objectivity of that type is based on standardization, on the belief that, whatever the complexity, diversity, and singularities of circumstances, it is always possible to put somebody in a given case of a statistical table at the crossing of some general nomenclatures without losing any relevant piece of information.

³ This conception of “rule” can be found in John Rawls (1955).

2.3 The Impossible Transposition in Social Life

However, things are not so simple, for the transposition in social life of procedural objectivity is precisely a utopia. It does not work for every case or all circumstances. When is it relevant and when is it not are questions that cannot be eliminated without the risk of social or cognitive damage. To take this example, the film “Welfare” by Frederick Wiseman, devoted to a welfare office in the United States, illustrates the conflict, very painful for both parties, that arises when a request for aid that would be justified in terms of social justice based on the welfare of persons does not fit into the framework defined by the system of rules. The employee is caught between the desire to do the right thing, and the impossibility of satisfying the demand. And the applicant cannot achieve a just resolution of his case.

Does such a situation, apparently unsolvable, mean the impossibility to overcome the conflict or does it simply signal that there could exist other ways to define the problem, other worlds of quantification, and types of objectivity than those based on standardized impartiality? In such a situation, debating and convincing other participants that one is right is inconceivable for individuals because their claims are facing a complex, standardized, and powerful machinery, a multilevel system of rules which produce the data and the final yes or no judgment. Are there nevertheless worlds, in the sense recalled in the introduction, in which social justice could be achieved in being founded on other principles?

The way to overcome the blockade and to understand what is at work is to decode the entire chain that has produced the data. Only professionals of statistics have the capability to do so, if not the will. If it is done – and Alain Desrosières and Laurent Thévenot were pioneers of such an undertaking (Desrosières 2008; Thévenot 1984) –, it would publicly appear a series of rules of classification and measurement that, taken one by one, are in no way scientific axioms. They are socially determined in the sense that other choices would have been possible that would have led to another frame and judgment. In the illustrations from Wiseman, it could have appeared for instance that both the applicant and the employee had another principle of justice in mind, hence other ways of classifying and quantifying that would have achieved an agreement. One of the reasons could be that they know by their experience of life that, in this instance, using a minimum income threshold to decide whether to help or not was not relevant. For the specific case, the right issue was to provide the claimant with a decent housing that he cannot obtain on the market. The market was functioning on the basis of conventions, i.e. mutual expectations, like exhibiting individual responsibility, having a secure job, inspiring trust, etc. But, as these conventions are not taken on board by the rules of the welfare system, no adequate solution could be found.

3. When and Where Could Statistical and Social Conventions Meet?

We will pass here in review the specificities of statistical versus social conventions, and then consider how they could meet. The main difference between statistical and social conventions is basically that the former are rules, not conventions; only the latter can be labelled as conventions.

3.1 Statistical Conventions

Statistical conventions are not conventions in the sense of expectations mutually agreed among people, but rules. These rules have been pondered at length in keeping with forms borrowed from science, and aim for objectivity and incontestability. They create standard categories (which then allow general statements detached from elementary observation) by treating as equivalent all people, or answers to questionnaires that possess the same general property. As they are built for the long run, they have also their own temporalities that do not correspond to social temporalities.

Statistical conventions are built with reference to a founding scene: the configuration as defined by Norbert Elias (1973) in which the person is subject to questioning and is called upon to answer. These conventions are meant to construct and equip this scene adequately to reach the expected ends. We can speak of injunction because the person who is questioned faces (just like in a company) a vast institutional system embedded in the mechanisms, rules, and components of the scene, and hence enters a power relationship. This is clear in administrative statistics, for example the production of data that goes along with the daily operation of the welfare office, but is also more subtly present for the person being questioned for a population census or a survey.

Likewise, the general categories that underlie equivalence, according to Alain Desrosières (Desrosières 1998) (or commensurability, in the words of Wendy Espeland; see Espeland and Stevens 1998), and the observation methods deployed to implement them are elaborated, criticized, and revised in the professional spheres of statistics, accounting, or law. In these spheres, the discussion about which rules to choose and the choices to be made cannot totally escape from some observation on what is going on in society and the conventions at work. But the aim is that – once established – these rules can go their own way. So, the dynamic relationship between statistical and social conventions in a given society is complex and even unpredictable. Both systems borrow to each other, but at the same time they differ and sometimes even can take distance from each other.

3.2 Social Conventions

Social conventions also partake of cognition. That cognition, however, is the one of ordinary people, focusing on common situations, not of professionals of cognition. It arises not in a statistical scene centered on responding, but in daily life where action must be coordinated with others. At the difference of scientific or rational cognition which aims at producing explicit formal knowledge, the finalities of “daily” cognition are practical, even better, pragmatic. It is consequently centered on acting, precisely on the relevant acting that will produce the expected outcomes for people.

For EC, it follows from these characteristics that ordinary action always has three interrelated moments: a cognitive moment, a normative moment and a pragmatic one.

These moments, most of the time, are never considered as such either in statistics or in quantification processes. These moments are, however, essential to understand. In practice, they emerge in the instant and locus of the action (in other terms in the situation) and are indexed to these instant and locus. They are also dynamically articulated. The cognitive moment brings forth what “suffices” to know in the pragmatic moment (whose aim is the successful completion of the coordination). What to pragmatically know in the situation is linked to the normative moment. Conventions are also practical norms other people expect you will refer to in your action. So, they are not purely pragmatic in the usual sense, but they convey a notion of justice. It follows, for the EC, that the normative moment mobilizes individual conceptions about the fair treatment people expect from others during the coordination. Expectations on fair treatment allow people to select in their environment the relevant information, to interpret the behaviors and intentions of other people, and to guide his own action. The coupling of the three moments leads to success or to failure of the engaged coordination.

3.3 When and Where Could Statistical and Social Conventions Converge?

We have already noticed that the establishment of statistical conventions needs to be somewhat connected to social reality. If not, if they are too far away from daily understandings of that reality by people; the data processed from people’s answers would produce an information, mostly irrelevant for political purposes. In case of unemployment for instance, at least in France at the turn of the 20th century, women at work in homework (5 or 6 million), or peasants having at the same time an industrial job did not understand a situation of no work as unemployment in the modern sense (Salais, Baverez and Reynaud 1999). This situation was understood as part of normal life. Homework, for instance, had its off seasons with no orders. So, when questioned in a census, homeworkers did not produce answers leading to be classified as unemployed.

But it also can work in the other way. The diffusion in public policies of general categories may in the long run induce a shifting of “indigenous” understandings of social situation and lead not to identity, but to convergence towards statistical conceptions. It depends of other economic, social, or political transformations. In France, again for unemployment, from the 1970s onwards, women looking for a job began to register at public employment offices. In so doing, they adhered in practice to the official statistical definition of unemployment and were included in official statistics. It led to an increase of the number of unemployed people that was somewhat artificial because it was not linked to any fall of the level of employment.

Such reciprocal moves are unpredictable. It could or could not occur. As Bénédicte Zimmermann (2001, 2006) demonstrates, the move toward a general and generally admitted category of unemployment proved impossible in Germany. The plurality of social worlds (see the next section) was so resilient that still today several regimes of employment, hence several understanding of what means to be unemployed cohabitate in Germany.

4. Worlds and their Informational Bases of Judgment in Justice

The problems with the articles on quantification mentioned above are, firstly, their tendency to limit the person to the rational individual, and secondly, the failure to take plurality into due consideration. They rightly described the conceptions of quantification in Anglo-American administrations and enterprises, but cannot ground any relevant critics. These limitations must be surpassed in order for research to fully grasp social processes of quantification. That is what EC can take on board by focusing on social conventions.

As individuals are social beings embedded into networks of affiliations and activities, they are able to differentiate different worlds in the meaning we provided in the introduction and to which we will come below. They are able to think and act within them by practicing the system of conventions relevant in the world in which – in the situation under progress – they consider to be. Hence, they have the capability to take distance from and to be critical against quantification processes they believe inadequate to their conception of the evaluated domain of activity or to their values. Any scientific approach of quantification processes should fully integrate these facts. It is no more possible to view the diversity of practices by the unique lens of objectivity as evidence, impartial objective justice and standardization of data. One should be open to other elaborations that obey to the above principles.

To succeed requires working at the crossing of two fields of research, that of the plurality of worlds already labored by EC and that of the informational bases of judgement on justice (IBJJ) as developed by Amartya Sen in his capa-

bility approach. We first remind the plurality of worlds as conceived by EC, and then, make the bridge with the Sen's IBJJ.⁴

4.1 The Plurality of Worlds and their Conception of Objectivity and Justice

The “plurality of worlds” hypothesis and its empirical description are running all along EC's research process, especially in Eymard-Duvernay (1989), Boltanski and Thévenot (1991), and Salais and Storper (1993, 1997).⁵ Through various elaborations, all these works converge towards the same basic axioms and outcomes.

As stated in the introduction, systems of conventions give access to a plurality of worlds. In Salais and Storper (1997) we distinguished four of these worlds: the industrial world, the interpersonal world, the market world, and the intellectual world – plus combinations between them. Let us here only focus of their conception of objectivity and justice.⁶

The *industrial world* is congruent with objectivity as evidence, for its organization and functioning are based on systematic standardization of products, of industrial processes, of work and individual identification, of measurement, of performance reduced to quantitative variables. The industrial world takes the evidence exhibited by numbers as a general principle to direct evaluation. No aspect of the reality at stake can escape to such processes of rising into generality. No singularity is capable of resisting such generalization and equivalence or to serve to support for criticism. In the industrial world, the particular is expressed only as an example, an application of the general model. It does not signal the presence of another world in the situation, though this might appear beneath the surface during the coding of elementary operations (Thévenot 1983). This is the price to pay in order to establish the impersonal impartiality of a quantitative observation of the situation, which is the sole conception of justice making social and economic coordination possible in that world. But there are other worlds, such as the interpersonal world and the market world. In the *interpersonal world*, coordination is based upon durable personal relationships. People have an in-depth knowledge of the others coming from familiarity acquired through proximities. To coordinate in a given situation does not have to rely on quantification. It mostly requires spontaneous forms of understanding of the situation based on familiarity and experience. In the *market world*, quantification is of interest only because it reveals the degree of competition between individuals and, more generally, between participants in the market. It helps to make ratings and scorings along price and cost comparisons,

⁴ See also Salais (2015).

⁵ See, for an in-depth presentation in German, Diaz-Bone (2015).

⁶ For a detailed presentation see Salais and Storper (1993), Storper and Salais (1997).

to discover the best offer or the best demand, to build anticipations on the futures. Basically, the ideal-type of quantification for all markets in the market world is made of the series of indicators that enable stock markets to make conjectures about the shares of all sorts that are bought and sold.

More generally, in the compromises that prevail between these worlds and the industrial world, quantification can be useful at certain levels of aggregation, but not at more “local” levels. And the question of what *not to quantify* becomes a key issue for achieving such compromises. There is no need to quantify everything; as Sen said, “description is choice” (Sen 1980). In other terms: quantifying is at the same time submitting people to evaluation, hence to control, and trying to guide their actions. Not to quantify implies to decide, whatever the way to do so, what type and scope of freedom, and into what domain have to be left to people, especially as markers of trust.

4.2 Sen and the Informational Basis for Judgment in Justice

So, we must look beyond the sociology of science-based quantification to elaborate the theoretical foundations of the plurality of modes of *quantification*, based on the plurality of worlds, and thereby the plurality of social forms of knowledge. Amartya Sen’s works on *capability* and the *informational basis of judgement in justice* (IBJJ) are offering the basis for a wider and more relevant theoretical framework on which to build. Sen – in an entirely different intellectual domain: the theories of justice – broaches the dimension of justice in its double dimension of “correctness” and of “fairness.” The originality of Sen, compared to Arrow or Rawls, is his insistence on the informational basis of judgement in justice, which, in a democracy, defines the content and mechanisms of collective choice. In his theoretical treatment of collective choices, Sen maintains the need for objective evaluation of the individuals and their social positions, as opposed to the dominant procedural current of ordinal ranking. The knowledge of social reality, of its *substance*, should be the object of a collective building of knowledge, not only the *ranking* between situations or individuals.

Such introduction of fairness issues radically transforms theoretical and practical approaches to quantification in the social world. Firstly, it renders explicit the normative dimension of any quantification process, which legitimates the need of public discussion and democratic deliberation on choices initially considered as purely technical and to be left to technicians and experts. Secondly, it enriches the concept of “facts,” making factuality and knowledge a collective elaboration where all stakeholders interested in the domain under review have to participate. Suddenly, John Dewey and his concerns about inquiry, the constitutions of publics, and people’s participation become parts of the fields of research and of collective action. Far from to be isolated against social conventions and

against the singularity of situations, facts, to be rightly and correctly elaborated, require taking into account social conventions and singularities.

Sen introduces, in effect, a fascinating concept for research on and practices of quantification, that of *factual territory*. Let us first quote Sen:

The informational basis of a judgment identifies the information on which the judgment is directly dependent and – no less important – asserts that the truth or falsehood of any other type of information cannot *directly* influence the correctness of the judgment. The informational basis of judgments of justice thus determines the *factual territory* over which considerations of justice would *directly* apply (Sen 1990, 111).⁷

A factual territory for a given issue at whatever level is composed of all the information which is, no more no less, necessary and sufficient to achieve the two criteria of correctness and fairness for the decision to build and the choice to make. For the *same situation*, depending of the world to which people consider belonging (or of the compromises between), several factual territories can be built for the same issue and a choice so offered to the democratic debate. The last – but not least – advantage to the concept of IBJJ is that the relevant information is not limited to quantities. This helps to have a wider look at quantification processes, notably at the selection of facts to be quantified and how, of those which are not. It helps to be aware of the normativity embedded into technical choices and to reveal it.

Without harking back to the canons of Arrow or Rawls, let us say that in theories of justice, the problem of democratic choice is to achieve an optimal outcome, according to two criteria to fulfil:

- 1) All individuals feel that they occupy the right place and have their claims taken into account, because they find the necessary resources and, according to Sen, the capabilities to conduct the life that they value.
- 2) This optimal outcome is attained through democratic deliberation between individuals in which each and all have been able to participate, express their claims and have them heard by others. Collective agreement is possibly only under these twin conditions. So, it is a matter of collectively reaching a state of common knowledge that is just, i.e. both correct and fair.

5. Implications for Research on Quantification Processes

Of course, few effective processes of quantification obey the whole guidelines leading to an IBJJ. But starting from this theoretical framework helps to discover, for a given process, which it takes on board and which is missing. So doing, one can found both: a relevant critique and a search for alternatives. To

⁷ The two emphases on the word "directly" are from Sen, the one on "factual territory" is made by us.

conclude, we will focus on three issues that make the difference for the analysis of quantification between the standard evidence approach and the approach of EC: facts, objectivity, and democracy.

5.1 Which Facts?

Coming back to our discussion in Section 2, one should emphasize that the facts so engendered – their “factuality,” if one could say – are not at all the evidence, so praised in Anglo-Saxon methodologies. The difference concerns several points:

- there are collective judgments on the situation at stake, its issues, and participants, not positivist or what-works statements reflecting some pre-existing reality, purged from its conventional elements;
- these judgments constitute cognitive representations in which normative concerns are embedded into the choice of cognitive categories and inquiry methods;
- there is a plurality of possible relevant judgments for the same situation and issue, depending on the agreement between participants on the relevant world (or compromise between worlds).

5.2 Which Objectivity?

The status of objectivity is not, and cannot be, the same for statistical and social conventions. The difference comes from the treatment of social justice. At best, as we have seen, statistical objectivity can support an instrumental conception of justice, equal treatment of quantifying between people, and impersonality. But it has not been explicitly searched for.

Expectations of fair treatment by people in their daily life and work are far from being restrained to equal treatment of quantifying. For instance, in a world built around personal and durable relations (one can find in neighborhood, in family, in small firms, or personal networks), people expect more than only impersonal treatment. As they know that others have a true knowledge of them, they expect (mutually) to be treated at their value. Not a standard number, but a value whose expression is, for the essential, qualitative, unique, and even singular as it is closely linked to the situation and to the persons present in it. In the market world, people expect as fair treatment to buy and exchange goods that satisfy their individual utility, hence the key role they attribute to the signals sent by the participants to the market and to their correctness. Only in the industrial world built on systematic standardization in all domains could people be ready to accept their instrumental reduction to numbers (though not so easily because there are here and there always traces of other worlds in any coordination built along industrial world's principles, for instance in wage determination, or in tacit expectations from managers that workers compensate by their initiatives the failures and hazards that occur in any rational organization).

So if one endorses the theoretical approach of EC, objectivity should be understood as “conventional,” that is an objectivity which is not only correct in terms of scientific procedures, but is by the same way based on common expectations between the participants with regard to the right principle of justice (or the compromise) to refer to. The plurality of objectivities has to be acknowledged, each of one being viewed as socially valid, and of equal theoretical and practical value. Objectivity should be considered, above all, as a social construct at the crossing of correctness (in its usual scientific acceptance) and fairness (applying a principle of justice recognized as legitimate in the community at stake).

5.3 Which Democracy?

In an EC approach, enriched with Sen’s IBBJ, the theoretical and empirical grid to analyze quantification processes should start from the following assumptions:

- As a social construct, any objective judgment evaluating situations or people should be produced, neither from outside, nor from rules chosen by some authority or power considering it has some natural a priori legitimacy to do so.
- Choice has to be “democratic,” with the participation of the evaluated.
- Even so, these assumptions can be transcribed in several ways, depending of the way the leading authority conceives its action and coordination with the evaluated and find an agreement with them.

Following these guidelines to build observations helps to have access to segments of reality that are most the time inaccessible to standard approaches. One will only develop the last point about the diverse conceptions of authority, for it largely remains *terra incognita*. We had our attention attracted to this issue thanks to our approach to the state, developed with Michael Storper (Salais and Storper 1993, 326-46). Looking at the diversity of states’ conceptions in Europe and in process of the invention of the European Union, it is easy to discover traces of different historically-rooted conceptions of central authority and its relationship with democratic practices (Salais 2015). There are parallels and homologies to establish at a higher level with the worlds we presented in this contribution, especially the industrial world, the interpersonal world and the market world.

Remember that a world in our sense is not real in the standard meaning, but is a pragmatic world that holds on by the belief, shared by the participants, that they belong to that world. So doing, people develop mutual expectations that allow them to successfully coordinate. The same could be said of the relationship between a central authority and the people under it. Such a relation holds and leads to expected outcomes, only and only if both sides share the belief they belong to the same world. If not, quantification processes are characterized by a lack of consistency, which leads to rational manipulation, cheats, and other similar manifestations from both sides. Using a grid based on types of

authority and of legitimacy so conceived again helps to shed lights on such phenomena and to decrypt discourses and attitudes.

What are the key issues for defining such types of authority and legitimacy? is a largely open question. In Salais (2015), with regards to the state, I oppose two global conceptions of the relationship expected by both sides.

- 1) In the first conception, each side agrees to devolve to the central authority the whole task of building the quantification process (modalities, what and how to measure). Evaluated people, through their representatives, are asked to indicate if they agree the choices made by the central authority. The applied procedure is similar to the one which is used in standard representative democracy. The question that remains and to be observed is to what extent – as they have no true say in it (and are satisfied by such a position) – the evaluated people are committed to take the evaluation procedure as their practical benchmark.
- 2) In the second conception, the authority and the future evaluated people, by common agreement, decide to build part or all of the modalities of the procedure, including what and how to measure issues. In practice, it requires that both sides commit themselves into deliberative procedures which try to achieve deliberate decisions. At the difference from strategic decisions, deliberate decisions are decisions that both sides have the effective intention to apply. One will not go further, except to note the proximities with the concepts of subsidiarity and of deliberative democracy. One cannot expect that the central authority or the people spontaneously enter in such a demanding cooperative process. In his works, John Dewey (1927) has in-depth explored the political conditions making such frames of coordination possible. Dewey understands democracy as a collective practice led by collective movements that struggle for creating what Dewey calls publics, that is people gathering together able to defend a cause (common goods for instance) and to build the relevant knowledge for implementing this cause. When built along Dewey's lines, democratic quantification processes would bond the authority to implement principles of social justice as well as criteria and procedures that would have been collectively agreed and tested. Here we have the right format both to implement and to make relevant research on quantification.

6. Conclusion

Quantification is plural. One can build several processes of quantification for a given social activity. These processes will differ depending of the agreed principle of justice among the participants. Such a plurality means that any quantification process has to be situated, for the choices of what and how to quantify depend of the situation, the activity, the people, and their principles of justice, in other terms, the world (or the compromise between different possible

worlds) they agree they are living together. So, any quantification is at the same time an evaluation based on explicit or implicit values. Another consequence is that to be not only democratic, but basically correct in terms of representation of the reality and fair in terms of justice values, quantification processes cannot be built from above and from the external. They should involve, from the beginning to the outcome, the people whose activity is the object of quantification. Last but not least, one of the key questions often neglected on quantification issues is what is worth to quantify and what is worth not to quantify. For the sake of efficiency, for instance, it could be better for all to let spaces of freedom for people in which what is going on is neither observed, nor evaluated.

What precedes has to be taken both as a grid about what to observe and how, and as general guidelines to build what should be in our view a satisfying process of quantification; even if, until now processes of quantification in the social world have not yet, except rare examples, followed such guidelines.

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